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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,057	06/26/2006	Gert Daube	LEA 36807	4884

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EXAMINER	
RAO, SAVITHA M	
ART UNIT	PAPER NUMBER
1614	
MAIL DATE	DELIVERY MODE
07/16/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/567,057	DAUBE ET AL.	
	Examiner	Art Unit	
	SAVITHA RAO	1614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-7* is/are pending in the application.

4a) Of the above claim(s) *1,4 and 5* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3,6 and 7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/01/2006 and 08/26/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1 and 3-7 are pending.

Claims 1, 4 and 5 are withdrawn from consideration as being drawn towards nonelected specie.

Claims 3, 6 and 7 are under consideration in the instant office action.

Election/Restrictions

Applicant's election without traverse of "Pradofloxacin" as the single disclosed specie of 8-cyanoquinolone in the response filed on 04/20/2009 is acknowledged

Examination of this application is conducted to the extent that they read on the elected specie of Pradofloxacin.

Claims 1and 4-5 are withdrawn as being drawn to non-elected specie.

Claims 3, 6 and 7 are under examination and the requirement for restriction is made final.

Claim Rejections - 35 USC § 102(b)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 3, 6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Fraatz (Abstract only: Abstracts of the interscience conference on antimicrobial agents and chemotherapy, 2002, volume 42, pp.189)

Fraatz discloses pradofloxacin as a new fluoroquinolones developed for the treatment of bacterial infections in dogs and cats. Fraatz discloses that pradofloxacin has improved in vitro activity against a broad spectrum of pathogenic species. Fraatz further discloses treatment of animals with tablets comprising different strengths of pradofloxacin to evaluate the pharmacokinetics of pradofloxacin (abstract).

Though it is noted that Fraatz does not administer the pradofloxacin for the purpose of systemic treatment of bacterial infections of the oral cavity, the method performed by Fraatz (administration of pradofloxacin orally to animals), is the same as the method currently claimed, and thus inherently anticipates the claim. Under the principles of inherency, if a prior art method, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art method. When the prior art method is the same as a method described in the specification for carrying out the claimed method, it can be assumed the method will inherently perform the claimed process. See In re Best, 562 F. 2d, 1252, 1255, 195 USPQ 430, 433 (CCPA 1977) and Ex parte Novitski, 26 USPQ 2d 1389 (Bd. Pat. App. & inter. 1993). There is no requirement that a person of ordinary skill in the art would have recognized the inherent disclosure at the time of the invention, but only that the subject matter is in fact inherent in the prior art reference. See Schering Corp. v. Geneva Pharm. Inc, 339 F.3d 1373, 1377, 67, USPQ2d 1664, 1668 (Fed. Cir. 2003). See also Toro Co. v. Deere & Co. 355 F.3d 1313, 1320, 69 USPQ2d 1584, 1590 (Fed. Cir. 2004). It is also noted that "Products of identical chemical composition cannot have mutually exclusive properties." A chemical composition and its

properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). As such the instantly claimed mechanistic functions of the pradofloxacin in treating bacterial infections of the oral cavity are inherent to pradofloxacin and would therefore elicit these effects whenever it is administered. Therefore the method performed by Fraatz inherently anticipates the current subject matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

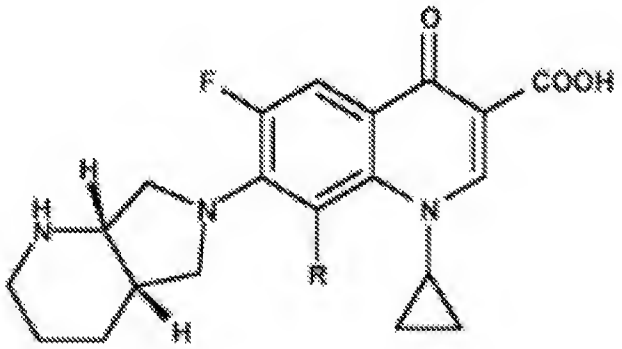
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3, 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schulz et al (WO 0145676, as translated by the US application US 2003/0045544, referenced in the IDS) in view of Vetter et al (US 5808076,) and Himmler et al (Abstracts of the interscience conference on Antimicrobial Agents and Chemotherapy (2002)

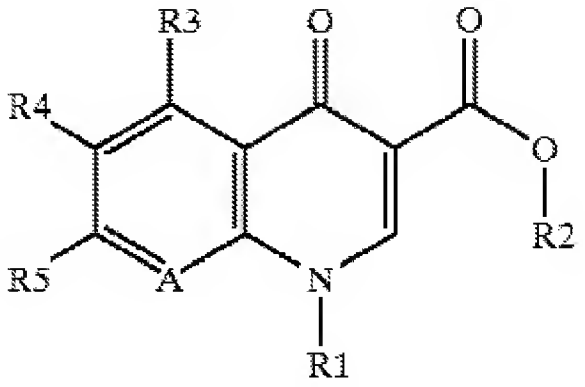
Claims 3, 6 and 7 are drawn to a method for the systemic treatment of bacterial infections in the oral cavity comprising administering to a human or an animal an effective amount of Pradofloxacin (structure of which is described below).



Pradofloxacin R = CN
Moxifloxacin R = OCH_3

Schulz et al teaches the use of chemotherapeutic agents for the production of medicament useful for the topical and local treatment of diseases caused by bacteria in

humans and animals (abstract). Schulz teaches that in the oral region, tooth decay, inflammation of the eperiodontiumis both are caused by bacteria [0002-0003]. Schulz teaches chemotherapeutic agents which are derivatives of quinolone-carboxylic acid or napthyridone carboxylic acid of general formula (I) shown below.



[0019] in which:

A	is CH, C-halogen, C—CH_3, C—CN, C—OCH_3, C—$OCHF_2$ or N,
R1	is C_1–C_5-alkyl, C_1–C_5-alkenyl, 2-fluoroethyl, cycloalkyl, bicycloalkyl, 2-fluorocyclopropyl, 1-oxetan-3-yl, methylamino, optionally substituted phenyl or pyridyl, or A and R1 together form the group C—O—CH_2—$CH(CH_3)$—,
R2	is hydrogen or C_1–C_3-alkyl optionally substituted by hydroxyl, halogen or amino,
R3	is hydrogen, halogen, methyl, amino or NH—NH_2,
R4	is hydrogen, halogen or amino, and
R5	is an optionally monosubstituted or polysubstituted mono-, bi- or tricyclic alicycle which is saturated or has at least one double bond and which optionally has at least one heteroatom in the ring system, or an aromatic mono-, bi- or tricycle optionally having at least one heteroatom,

Generic structure of formula (I) shown above by Schulz encompasses the instantly claimed compound pradofloxacin.

Schulz teaches that these compositions when applied topically or locally have a beneficial action in the treatment of diseases caused by bacteria in the oral region of humans and animals [0023] particularly in topical treatment of pulpits due to caries disease and prophylaxis of dentin wounds treatment of infected root canal and other periodontal diseases [0036]. Accordingly, Schulz provides an ordinarily skilled artisan to develop a method of treatment of oral cavity infections with pradofloxacin.

Schulz does not teach the systemic administration of the drugs and does not specifically recite the name of the bacterial species which causes the oral cavity diseases as recited in instant claim 7.

However, Vetter et al. teaches preparation of orally administrable formulations of quinolone or natphyridonecarboxylic acids (abstract). Vetter et al. teaches the preferred quinolone compounds to include orbifloxacin, marbofloxacin, danofloxacin, difloxacin, ibafloxacin and danofloxacin (col.1, line 63 to col.2, line 1). Vetter et al. teaches that the formulations of the said fluoroquinolones are suitable for use in the fields of geriatrics and pediatrics or in veterinary practice in taste sensitive animals and that his formulations are active against several different bacterial species which includes bacterial species of "Actinobacillus and Bacteroides species" (col.4, lines 56 – 57) . Vetter teaches tablet formulations for systemic administration of the said fluoroquinolones (col.1, 27-30 and col.6, examples 2 and 3). Accordingly, Vetter et al provides motivation to an ordinarily skilled artisan to utilize the fluoroquinolones in oral tablet form for systemic administration.

Himmler teaches the synthesis of pradofloxacin and determination of its minimum inhibitory concentrations (MIC) in comparison with other fluoroquinolones such as difloxacin, enrofloxacin, marbofloxacin, orbifloxacin and sarafloxacin on strains of *E.coli*, *S. aureus* and *S. intermedius.* Himmler further teaches that of all the fluoroquinolones tested pradofloxacin had the lowest MIC for all the three strains of bacteria (E.coli and for *S.aureus* and *S. intermediius)*. Himmler therefore provides motivation for an ordinarily skilled artisan to utilize pradofloxacin in lieu of other fluoroquinolones sited by Himmler as an effective antibacterial agent.

With regards to the specific bacterial species recited in instant claim 7, Schulz teaches that the instantly claimed compound is highly effective in combating the bacteria of oral cavity when treated locally; Vetter teaches that fluoroquinolones such as orbifloxacin, marbofloxacin etc possess a broad spectrum of activity which includes the species of bacteria infecting the oral cavity such as bacteroides specie. As such upon systemic treatment pradofloxacin which is also a type of fluoroquinolones and is more effective than the other fluoroquinolones in in-vitro studies would elicit its activity by its antibacterial action against the bacteria in the oral cavity. " It is also noted that "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). As such the instantly claimed mechanistic functions of the compounds to treat the specifically recited bacteria would be present in the identical

compounds taught by Schulz et al and would therefore elicit these effects whenever it is administered .

In view of the foregoing references, the instantly claimed method for the systemic treatment of bacterial infections of the oral cavity with pradofloxacin would have been prima facia obvious to one of ordinary skill in the art at the time the invention was made. Schulz et al teaches the use of fluoroquinolones such as pradofloxacin in topical and local treatment of oral cavity infections, Vetter teaches the systemic activity of fluoroquinolones against a very broad spectrum of bacteria which includes species of oral cavity bacteria and related species. Accordingly, an ordinarily skilled artisan would be motivated to combine the teachings of Schulz et al and Vetter et al to develop a method of treating bacterial infections of the oral cavity by systemic administration of pradofloxacin and other fluoroquinolones. Himmler provides additional motivation to an ordinary skilled artisan to utilize pradofloxacin as it showed the lowest MIC (minimum inhibitory concentration) in comparison to other fluoroquinolones in inhibiting *E.coli* and for *S.aureus* and *S. intermediius* . An ordinarily skilled artisan will be imbued with at least a reasonable expectation of success that such a method of treatment would provide alternative therapeutic options which has a broad spectrum of activity in treatment of oral cavity infections.

Conclusion

Claims 3, 6 and 7 are rejected. No claims are allowed

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAVITHA RAO whose telephone number is (571)270-5315. The examiner can normally be reached on Mon-Fri 7 am to 4 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel can be reached at 571-272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SAVITHA RAO/
Examiner, Art Unit 1614

/Ardin Marschel/
Supervisory Patent Examiner, Art Unit 1614